REMARKS

This is in full and timely response to the above-identified Office Action. The above listing of the claims replaces all prior versions, and listings, of claims in the application. Reexamination and reconsideration in light of the proposed amendments and the following remarks are respectfully requested.

Rejections under 35 USC § 103

1) The rejection of claims 1-6 and 8-10 under 35 USC § 103(a) as being unpatentable over Schultz (USP 4,029,991) in view of Lloyd (Another Darlington Pair Speed Control), is traversed.

The main thrust of the rejection is that "efficiency" would drive the hypothetical person of ordinary skill to consider the Darlington Pair in Lloyd for use in Lloyd . Indeed, the rejection states that it "would have been obvious to replace the Darlington Pair of Schultz with the Darlington Pair of Lloyd so as to take advantage of the reduced voltage drop across the "complementary Darlington Pair", thereby increasing efficiency.

In this rejection, the Examiner has on page 4, also taken the position that the Darlington Pair in Schultz is not there purely for surge suppression but for control and regulation. The Applicant agrees. However, it is submitted that the effort to increase efficiency would render the Schultz arrangement at least partially inoperative for its intended control function.

More specifically, column 2, lines 25- Schultz discloses:

> In operation with the ignition switch 20 closed, the diode 26 prevents negative voltages from damaging the control circuit. The Zener diode provides 8 volts at its cathode and, assuming no current is conducted through transistor 40, **substantially 8 volts is supplied to the base of the Darlington pair 28. Due to the base emitter drops in the Darlington pair, 6.8 volts will be supplied to the LED display.** This is **sufficient to maintain the display at its**

maximum brightness. The **ordinary voltage fluctuations of the vehicle power supply between 10 and 16 volts then have no influence on the display. In addition the voltage regulation provides transient protection to the display.**

Dimming of the display is controlled by the transistor 40 which can draw current from the Darlington base to **reduce the voltage supplied to the display**. When the light switch 16 is open, such as normally occurs during day time driving, there is no current supplied to the base of transistor 40 **so that transistor is nonconducting and the display 30 is operating at full intensity**. When the switch 16 is closed, current is supplied to the base of the transistor 40 through the resistor 46. Diode 50 is used to offset the base emitter drop of the transistor 40. The voltage on the wiper 23 of potentiometer 22 is supplied through the resistor 42 to the emitter of transistor 40 so that the conduction of the transistor 40 is a function of the difference between the power supply voltage and the dimmer voltage and is independent of the supply voltage. Thus in effect, it is the position of the wiper 23 which determines the current shunted from the Darlington base. Since the shunted current is drawn through the resistor 38; the **Darlington base voltage decreases in proportion to the current and the Darlington emitter voltage likewise drops to lower the LED intensity**. Preferably the values of resistors 46 and 48 are in the same ratio as resistors 42 and 44 so that the transistor 40 is a detector of the difference between the power supply voltage and the dimmer control voltage. (Emphasis added)

Thus, Schultz discloses that the LED display assumes maximum brightness via the application of 6.8 volt (less than the 8 volt which is supplied by battery 10). Thus, it would be understood that the Darlington Pair arrangement used in Schultz is such as to suitably reduce the source voltage from the battery to a voltage which is "suited" for maximum illumination of the LED display. In other words, the Darlington Pair arrangement of Schultz protects the LED arrangement from the full voltage supplied by the battery. Further, during dimming the voltage needs to be reduced even further.

The rejection ignores this protective feature and seeks to reduce the potential drop across the Darlington Pair arrangement for the sake of "efficiency." However, this "efficiency" will expose the LED display to a voltage in excess of that required for maximum illumination. It is submitted that this increased voltage might very well be detrimental to the LED display and curtail is operative longevity.

Note is called to the disclosure emphasized above:

> The ordinary **voltage fluctuations** of the vehicle power supply between 10 and 16 volts **then have no influence** on the display. In addition the voltage regulation provides transient protection to the display. (Emphasis added)

In addition to there being no need for an increase in efficiency, the reliance on Lloyd for teachings that would prompt the hypothetical person of ordinary skill to consider using a complementary pair such as found in Lloyd, is not well taken. In fact, Lloyd contains teachings that would suggest that the complementary pair would not provide the voltage protection that is suggested in Schultz.

Lloyd on page 2/4 states that:

> The power supply for this circuit **should preferably be un-smoothed** (i.e. directly from the power supply rectifier). This helps prevent the motor from **'sticking'** at low speeds. . . . (Emphasis added)

In that a motor need not be protected from surges and in that preventing the motor from "sticking" is suggested, via the absence of smoothing, it can only be taken that a surge of power to the motor is desirable to overcome the initial inertia which occurs at standstill (i.e. permit power surges). The reduction in potential drop across the transistors (and attendant heat generation) is also consistent with the wattage that is supplied to the motor.

Moreover, it is submitted that Lloyd is in fact non-analogous art with respect to the problem and technology involved in the Schultz arrangement.

Two criteria have evolved for determining whether prior art is analogous or not. The first of these criteria is whether the art is from the same field of endeavor, regardless of the problem that addressed. The second of the two criteria is, if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent of the particular problem with which the inventor is involved. *In re Deminski,* 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed.Cir. 1986); *In re Wood* 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

In connection with the first criteria, it is submitted that the art is not from the same field of endeavor. Schultz relates to surge protection, excess voltage protection (limits voltage applied to LED display from 10-16 volt to 6.8 volt) and voltage control (dimming control at night). Lloyd, on the other hand, relates to motor speed control and reduced potential drop (to improve motor control circuit efficiency - more motor power and less waste heat). Lloyd is devoid of a Zener diode and therefore not at all directed to surge suppression.

Additionally, while they both use Darlington Pair types of transistor arrangements, they are not directed to the same problem or field of endeavor. The efficiency of the Schultz arrangement is not an issue and in fact the potential drop which is produced by the Darlington Pair is seen as protecting the LED display from the 10-16 volt source voltages. The Lloyd circuit is directed to reducing potential drop to allow more power to be supplied to the motor. The supply of power to the LED display is not an issue in Schultz. Therefore, motor speed and LED illumination are not the same problem/field of endeavor.

The second criteria hinges on whether getting as much power efficiently to a motor, is relevant to controlling the level of illumination of a LED display. Inasmuch as the voltage is deliberately reduced from 10-16 volt to a maximum illumination inducing voltage of 6.8 volt in Schultz, the efficiency which is provided in Lloyd is totally meaningless in Schultz, and thus the teachings of Lloyd cannot be deemed reasonably pertinent to the problem which is overcome by the Schultz circuit arrangement.

As to motivation, it is submitted that if a generic "efficiency" is the sole motivation that this relied upon in this rejection, then the rejection fails to establish a *prima facie* case of obviousness. It is submitted that the hypothetical person of ordinary skill would not be prone to reduce the potential drop across the Darlington Pair for fear of damaging the LED display. 6.8 volt produces maximum illumination – why increase it? It would seem that if the voltage were to be increased, the resistance would have to increased by a value change in the components 34, 36 and 38,for example, to render them less efficient and to reduce the elevated voltage back down to 6.8 volt. The purportedly obvious modification (for the sake of efficiency) is therefore, nothing short of an exercise in futility.

The Office Action, on page 5, suggests that "motivation can even be suggested by the Examiner. Not so - see MPEP 2143.01. The Examiner would have to fall in the category of "knowledge of persons of ordinary skill in the art." The Examiner's attention is again called to the law which states:

> "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). **The level of skill in the art cannot be relied upon to provide the suggestion to combine references.** *Al-Site Corp. v. VSI Int'l Inc.*, 174

> F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). (Emphasis added)

Further, in connection with MPEP 2143.01, it is pointed out that the proposed modification cannot render the prior art unsatisfactory for its intended purpose. As pointed out above, increasing the "efficiency" of the Darlington Pair used in Schultz would raise the voltage which is applied to the LED display above 6.8 volt, because the potential drop Vbe would be reduced. This would expose the LED display to more than the 6.8 volt which is disclosed in Schultz as producing the maximum illumination, and therefore tend to obviate the protection from the higher source voltage enjoyed by the LED display in the Schultz arrangement.

It is noted that the Examiner is trying to avoid the above argument by stating that:

> The Examiner is not suggesting bodily incorporation of the Lloyd circuit into the circuit of Shultz, but rather than one having ordinary skill in the art, at the time of the invention, would have recognized the benefits of the Complementary Darlington Pair as taught by Lloyd and would have applied such teaching so as to conserve power by eliminating a Vbe voltage drop while regulating the LED load in the circuitry of Shultz, resulting in increased efficiency.

As noted above, even if the Vbe was lowered, an additional resistance would have to be added to reduce the more efficiently transmitted (higher) voltage back down to 6.8 volt. This is not a bodily incorporation but a fundamental requirement that flows from the proposed transfer of teachings. The LED is used in a system wherein the source voltage is 10-16 volt. It must be protected – a fundamental necessity. The changes which would be wrought by the proposed transfer of teachings and the proposed use of a Complementary Darlington Pair would raise the above considerations/concerns.

Further, the system would not be rendered more efficient. Only one part of the circuit would become more efficient and this would, in the Shultz environment, require

compensation to ensure that the LED display was protected from excessive voltage. A plus-minus-zero result wherein no power would be conserved, would result.

As to the claim amendments, these were made to prevent the Examiner from simply ignoring the preamble and forcing the situation wherein the recited structure was taken as a surge suppressing circuit. This is seen having no effect on the relevance of Shultz and that the Examiner's position with respect to this, is wrong.

The position that the Darlington Pair of Shultz is not purely for surge suppression but for control and regulation, is, as noted above, agreed with. In Schultz, the voltage supplied to the LED display, must be lowered from that for maximum illumination (daylight driving) to one for night driving. Without the resistance of the Darlington Pair, this control would be rendered difficult if not partially rendered impossible to achieve. The improved efficiency which is proffered in this rejection as being beneficial, would therefore prove to be a hindrance to raising and lowering the voltage for day and night driving.

The transfer of teachings which are advanced as being obvious in this rejection is seen as rendering the prior art at least partially inoperative for its intended purpose.

> "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. ***In re Gordon***, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)." M.P.E.P. § 2143.01.

2) The rejection of claim 7 under 35 USC § 103(a) as being unpatentable over Schultz, Lloyd and further in view of Anderson, is traversed.

Anderson is cited to show a capacitor in a Darlington Pair surge suppressing voltage clamping circuit. The motivation for considering the teachings of this reference in combination with Schultz and Lloyd is alleged to be that when the circuit was OFF there would be no leakage current flowing through the Darlington Pair, and that this would lead to increased power conservation and less unnecessary heat build-up.

It is to be noted that the Anderson arrangement shows a non-complementary type of Darlington Pair and that is essentially the same as that which is used in Schultz. The citation of Anderson therefore reinforces the tendency to use a non-complementary arrangement as distinct from that which would result from the purportedly obvious modification of Shultz.

To further distinguish the claimed subject matter over the cited references, claim 7 was amended in the previous rejection to call for the capacitor to be connected between ground and the base of the second transistor and in parallel with the Zener diode (recited in claim 2). It is again submitted that this would not result from the combination of art on which this rejection is based.

This rejection fails to address this Zener diode limitation. The rejection fails for at least this reason. The rejection of course fails in that it attempts to improve the efficiency of Schultz with the teachings of Lloyd and thus results in the dilemma outlined above.

Conclusion

It is respectfully submitted that the claims as they stand before the PTO are allowable for at least the reasons advanced above. Favorable reconsideration and allowance of this application are courteously solicited.

Respectfully submitted,

Date 06/14/2005

By _____

FOLEY & LARDNER LLP
Customer Number: 22428
PATENT TRADEMARK OFFICE
Telephone: (202) 672-5485
Facsimile: (202) 672-5399

William T. Ellis
Registration No. 26,874

Keith J. Townsend
Registration No. 40,358